

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Approach to patient with dysphagia

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ILO'S



- ❖ To know some physiological facts about swallowing.
- ❖ To identify the different anatomical and pathophysiological causes of dysphagia.
- ❖ To be able to approach the patient.



1. What is the most difficult substance to swallow?

Water. Why ?

Swallowing involves several phases. First, a preparatory phase involves chewing, sizing, shaping, and positioning of the bolus on the tongue. Then, during an oral phase, the bolus is propelled from the oral cavity into the pharynx while the airway is protected. Finally, the bolus is transported into the esophagus. Water is the most difficult substance to size, shape, and contain in the oral cavity. This makes it the hardest to control as it is passed from the oral cavity into the pharynx. Thus, viscous foods are used to feed patients with oropharyngeal dysphagia.



2. What sensory cues elicit swallowing?

The sensory cues are not entirely known, but entry of food or fluid into the hypopharynx, specifically the sensory receptive field of the superior laryngeal nerve, is paramount. The required signal for initiation of the swallow response is a mixture of both **peripheral sensory input** from **oropharyngeal afferents** and superimposed control from **higher nervous system centers**. Neither is capable of initiating swallowing independent of the other. Thus, swallowing cannot be initiated during sleep when higher centers are turned off or with deep anesthesia to the oral cavity when peripheral afferents are disconnected. .



3. What is the difference between globus sensation (globus hystericus) and dysphagia?

Globus sensation **is the feeling of a lump in the throat**. It is present continually and is not related to swallowing (neither related to swallowing, nor combined with dysphagia or odynophagia). It may even be temporarily alleviated during a swallow. Dysphagia is difficulty in swallowing and is noted by the patient only during swallowing.

5. What are common causes of globus sensation?

- ❖ Gastroesophageal reflux disease
- ❖ Anxiety disorders (must exclude organic disease)
- ❖ Early hypopharyngeal cancer
- ❖ Goiter

But **Sore throat**": pain on swallowing with or without the presence of a bolus (most common in the presence of pharyngitis or tonsillitis).

4. Do patients accurately localize the site of dysphagia?

No. Patients with **esophageal dysphagia** localize the abnormal site correctly only 60-70% of the time. Patients incorrectly localize the site of dysphagia proximal to the actual site in the remainder. Differentiating between proximal and distal lesions may be difficult, based on the patient's perception only.

Patients with **oropharyngeal dysphagia** usually recognize that the swallow dysfunction is in the oropharynx. They may perceive food accumulating in the mouth or an inability to initiate a pharyngeal swallow. They can generally recognize aspiration before, during, or after a swallow. **Associated symptoms, such as** difficulty with chewing, drooling, coughing or choking after a swallow, are more suggestive of oropharyngeal than esophageal dysphagia.

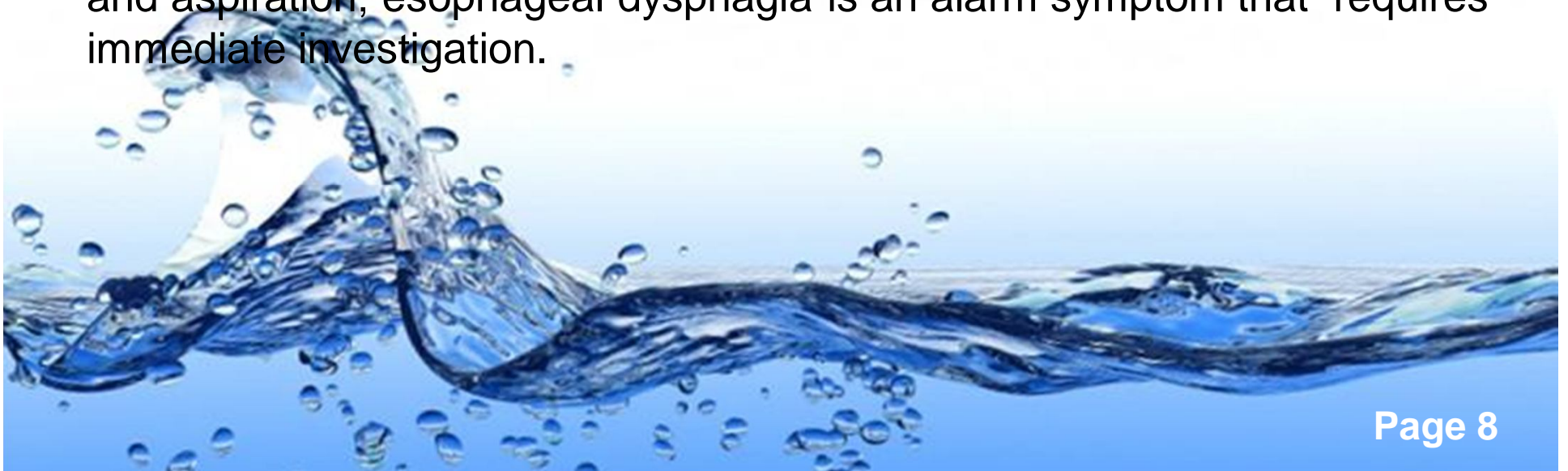
Anatomical classification

- **Oropharyngeal dysphagia:**

(“transfer”) dysphagia: failure to initiate swallowing and/or propel the bolus from the pharynx to the esophagus, often combined with choking, cough, and aspiration or nasal regurgitation (most common in the presence of underlying neurological or muscular disease).

- **Oesophageal dysphagia:**

transport”) dysphagia: failure to transport the bolus through the esophagus to the stomach, often combined with retching, regurgitation, and aspiration; esophageal dysphagia is an alarm symptom that requires immediate investigation.



6. What are the differences between esophageal and oropharyngeal dysphagia?

Table 1-2. ESOPHAGEAL VERSUS OROPHARYNGEAL DYSPHAGIA

Esophageal Dysphagia	Oropharyngeal Dysphagia
Associated symptoms: chest pain, water brash, regurgitation	Associated symptoms: weakness, ptosis, nasal voice, pneumonia, cough
Organ-specific diseases (e.g., esophageal cancer, esophageal motor disorder)	Systemic diseases (e.g., myasthenia gravis, Parkinson's disease)
Treatable (e.g., dilation)	Rarely treatable
Expendable organ (one function only)	Nonexpendable organ (functions include speech, respiration, and swallowing)



OROPHARYNGEAL DYSPHAGIA



ESSENTIALS OF DIAGNOSIS

- ▶ History of poor oral bolus preparation and control, difficulty in initiating a swallow, nasal and oral regurgitation, aspiration and coughing with swallowing, food sticking at the level of the throat.
- ▶ Evidence of a generalized neuromuscular disorder.
- ▶ Documentation by videofluoroscopic swallowing study (VFSS).



Table 13-1. Neuromuscular disorders causing dyspnea.

1. Diseases of cerebral cortex and brainstem

a. With altered consciousness or dementia

- Dementias, including Alzheimer disease
- Altered consciousness, metabolic encephalopathy, encephalitis, meningitis, cerebrovascular accident, brain injury

b. With normal cognitive functions

- Brain injury
- Cerebral palsy
- Rabies, tetanus, neurosyphilis
- Cerebrovascular disease
- Parkinson disease and other extrapyramidal lesions
- Multiple sclerosis (bulbar and pseudobulbar palsy)
- Amyotrophic lateral sclerosis (motor neuron disease)
- Poliomyelitis and post-poliomyelitis syndrome

2. Diseases of cranial nerves (V, VII, IX, X, XII)

a. Basilar meningitis (chronic inflammatory, neoplastic)

b. Nerve injury

c. Neuropathy (Guillain-Barré syndrome, familial dysautonomia, sarcoid, diabetic, and other causes)

3. Neuromuscular

a. Myasthenia gravis

b. Eaton-Lambert syndrome

c. Botulinum toxin

d. Aminoglycosides and other drugs

4. Muscle disorders

a. Myositis (polymyositis, dermatomyositis, sarcoidosis)

b. Metabolic myopathy (mitochondrial myopathy, thyroid myopathy)

c. Primary myopathies (myotonic dystrophy, oculopharyngeal myopathy)

ESOPHAGEAL MOTOR DYSPHAGIA



ESSENTIALS OF DIAGNOSIS

- ▶ Dysphagia to solids and liquids, localized to the chest or throat.
- ▶ Associated symptom of chest pain and regurgitation.
- ▶ Coughing and choking spells at night and unrelated to swallowing.
- ▶ Symptoms of GERD.
- ▶ Confirmation of abnormal motility by barium study and esophageal manometry.



Pathophysiological classification

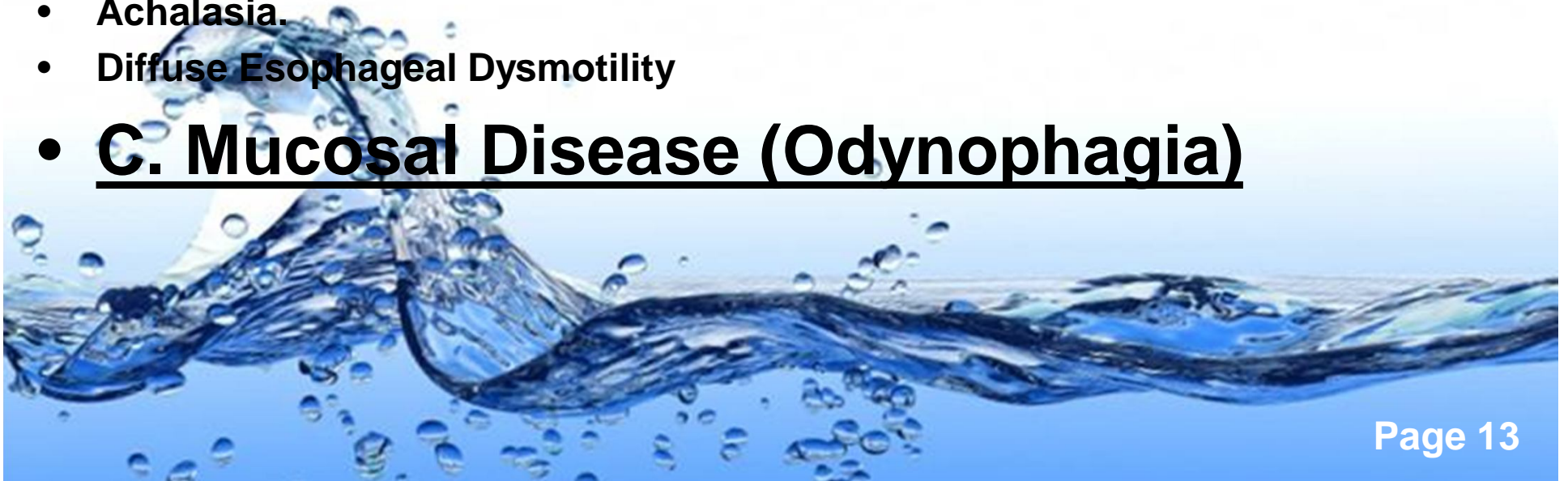
- **A. Structural Lesions:**

- **Esophageal Tumors** (carcinoma – leiomyomas)
- **Mediastinal conditions** (thyroid goiter)
- **Inflammatory stenosis** (peptic stenosis - Barrett Esophagus –others).
- **Esophageal Membranes and Rings** (GERD (Schatzki ring) or iron-deficiency anemia (Plummer–Vinson syndrome).
- **Zenker diverticulum.**

- **B. Esophageal Motility Disorders:**

- **Achalasia.**
- **Diffuse Esophageal Dysmotility**

- **C. Mucosal Disease (Odynophagia)**



Four essential questions?????

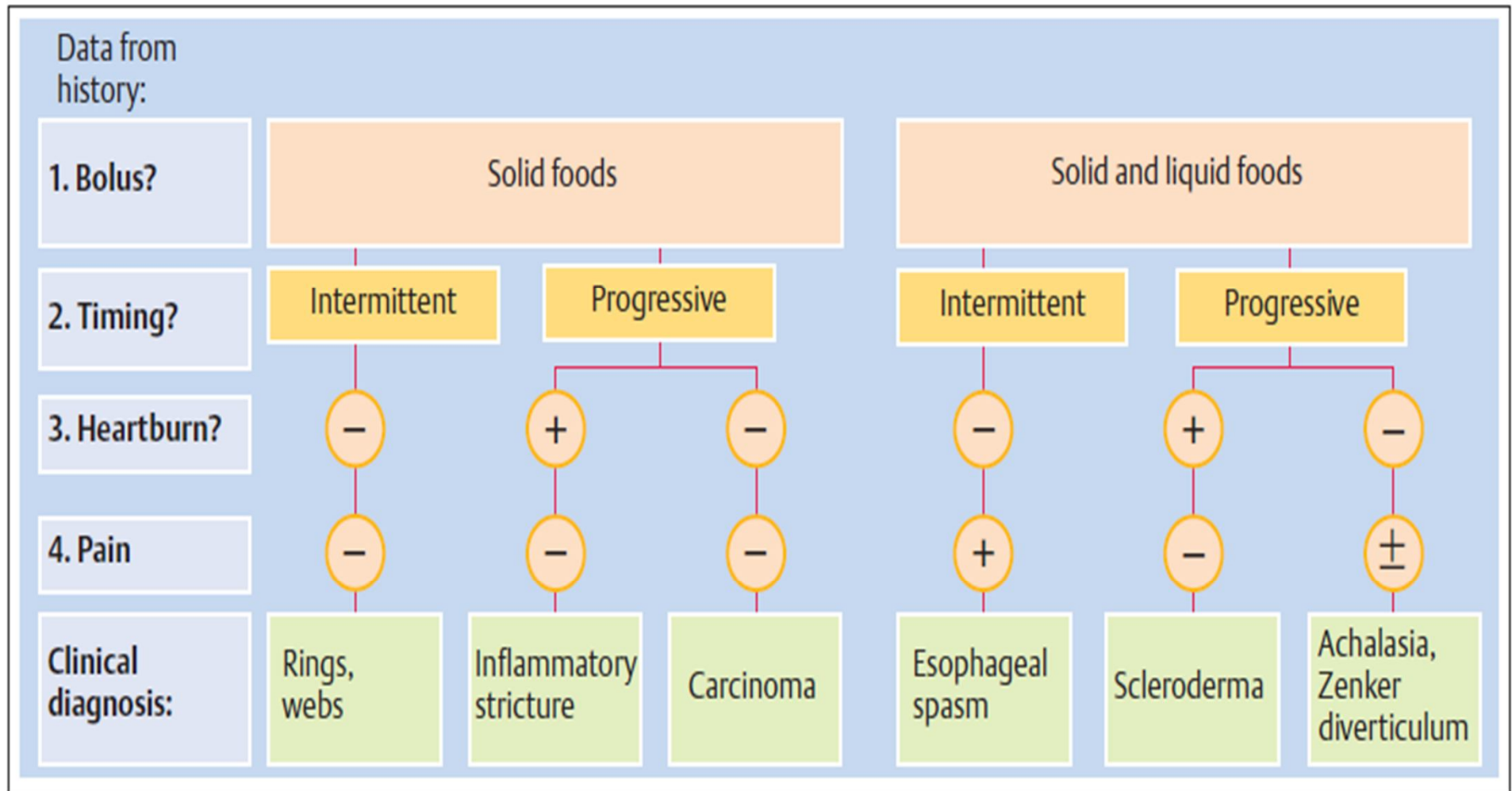
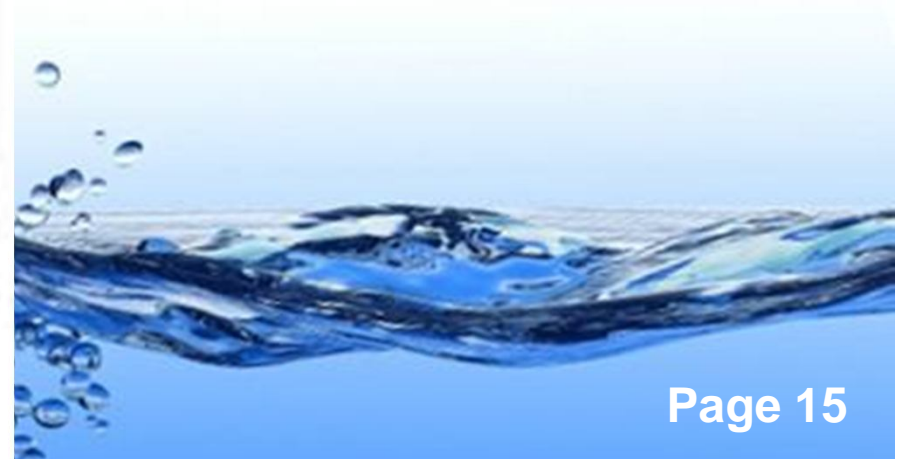
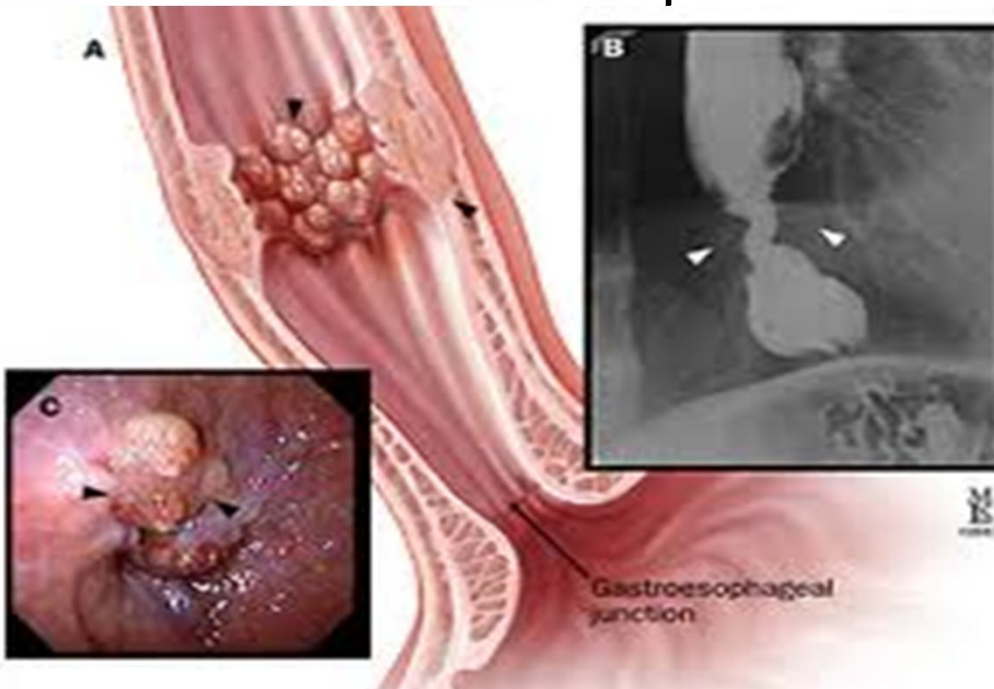


Fig. 26.1 Differential diagnosis of dysphagia: four essential questions in the clinical history.

A. Structural Lesions

- 1-Esophageal carcinoma:
- **typical clinical presentation** (rapidly progressive dysphagia, initially for solid food only and then for solids & fluids very late; anorexia, weight loss, and anemia).
- **Squamous cell carcinoma** tends to occur in heavy smokers and drinkers, whereas **adenocarcinoma** is most common in elderly men (60 years) with a long history of gastroesophageal reflux disease on top of Barrett esophagus.



A. Structural Lesions

- 1-Esophageal carcinoma:
- On endoscopy, squamous cell carcinoma is found in the proximal esophagus (70%), whereas adenocarcinoma occurs in the distal esophagus (30%). Tumors in the gastric cardia (gastric adenocarcinoma) may present in a similar fashion to esophageal carcinoma if direct extension of the tumor involves the gastroesophageal junction.

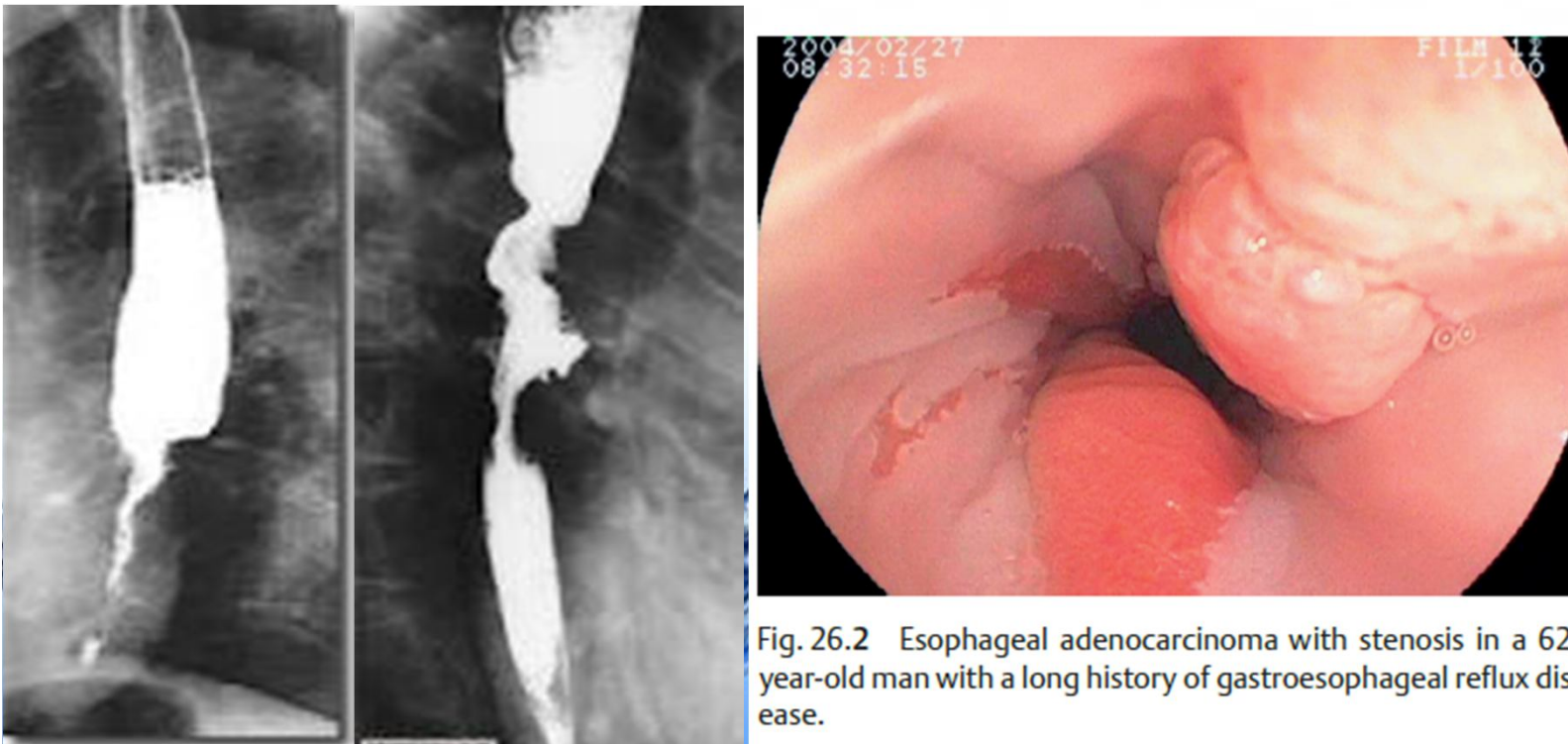


Fig. 26.2 Esophageal adenocarcinoma with stenosis in a 62-year-old man with a long history of gastroesophageal reflux disease.

A. Structural Lesions

Every presentation of dysphagia is suspicious of cancer and should be investigated by endoscopy.

Endoscopy is the most important investigation (Fig. 26.2). Biopsies obtained at endoscopy establish the diagnosis by histology. Radiologic investigations are insensitive, especially at early stages of the disease. At later stages, further symptoms may be caused by local invasion of neighboring organs:

- *hoarseness and aphonia* (recurrent laryngeal nerve)
- *Horner syndrome* (sympathetic chain, cervical ganglion)
- *dyspnea* (tracheal compression, esophago-tracheal fistula, metastases).



A. Structural Lesions

- 2- Barrett Esophagus:
- Columnar cell metaplasia in the lower esophagus (Barrett esophagus) is a complication of GERD. It used to be believed that these changes represented a progression from reflux esophagitis after many years of acid damage. However, recent observations suggest that Barrett esophagus can develop within a short period of time (<1 year) and may represent a distinct phenotypic response to acid exposure in the lower esophagus.

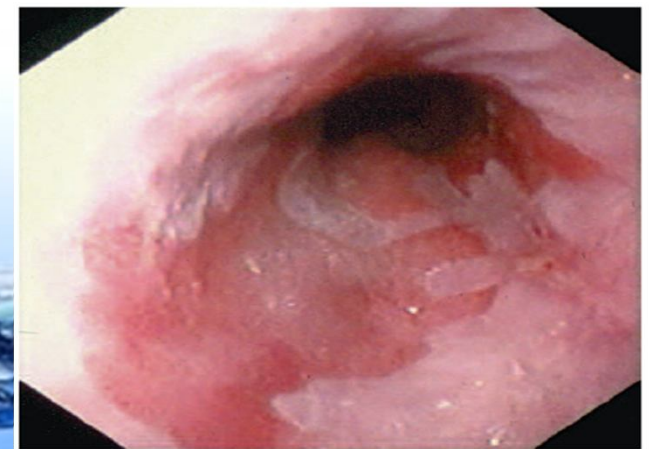


Fig. 26.3 Barrett esophagus in a 64-year-old man with salmon-colored epithelium (gastric metaplasia) in the lower esophagus.

A. Structural Lesions

- 2- Barrett Esophagus:

- Barrett esophagus is a **premalignant condition** with an incidence rate of 1–3% per year for the development of dysplasia and 0.5% per year for adenocarcinoma. Ulceration and stenosis within Barrett esophagus often indicates the presence of dysplasia or carcinoma. **Regular surveillance endoscopy and biopsy** is recommended at two to three year intervals and more frequently in the presence of ulceration, stenosis, or histologically confirmed dysplasia.

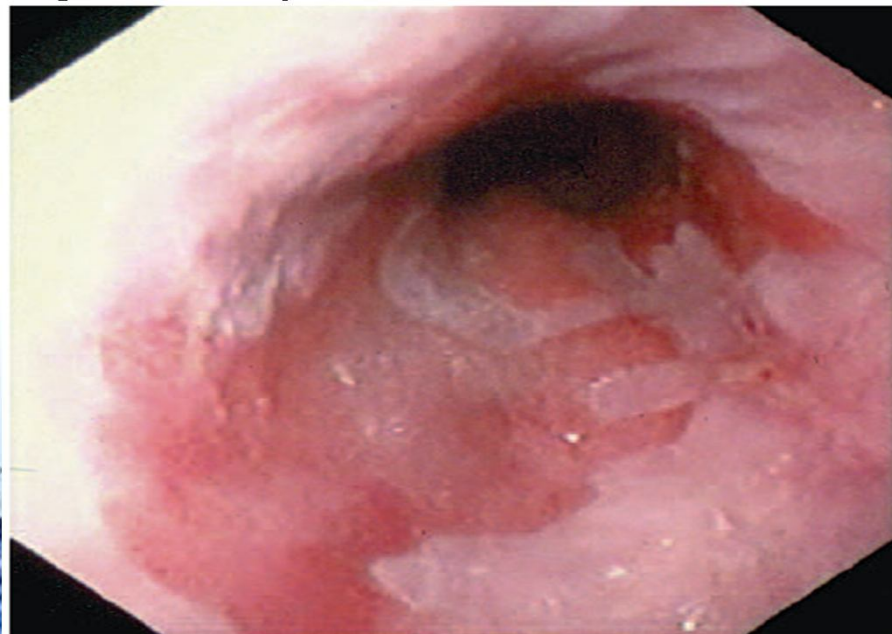


Fig. 26.3 Barrett esophagus in a 64-year-old man with salmon-colored epithelium (gastric metaplasia) in the lower esophagus.

- 3- Zenker diverticulum :

A. Structural Lesions

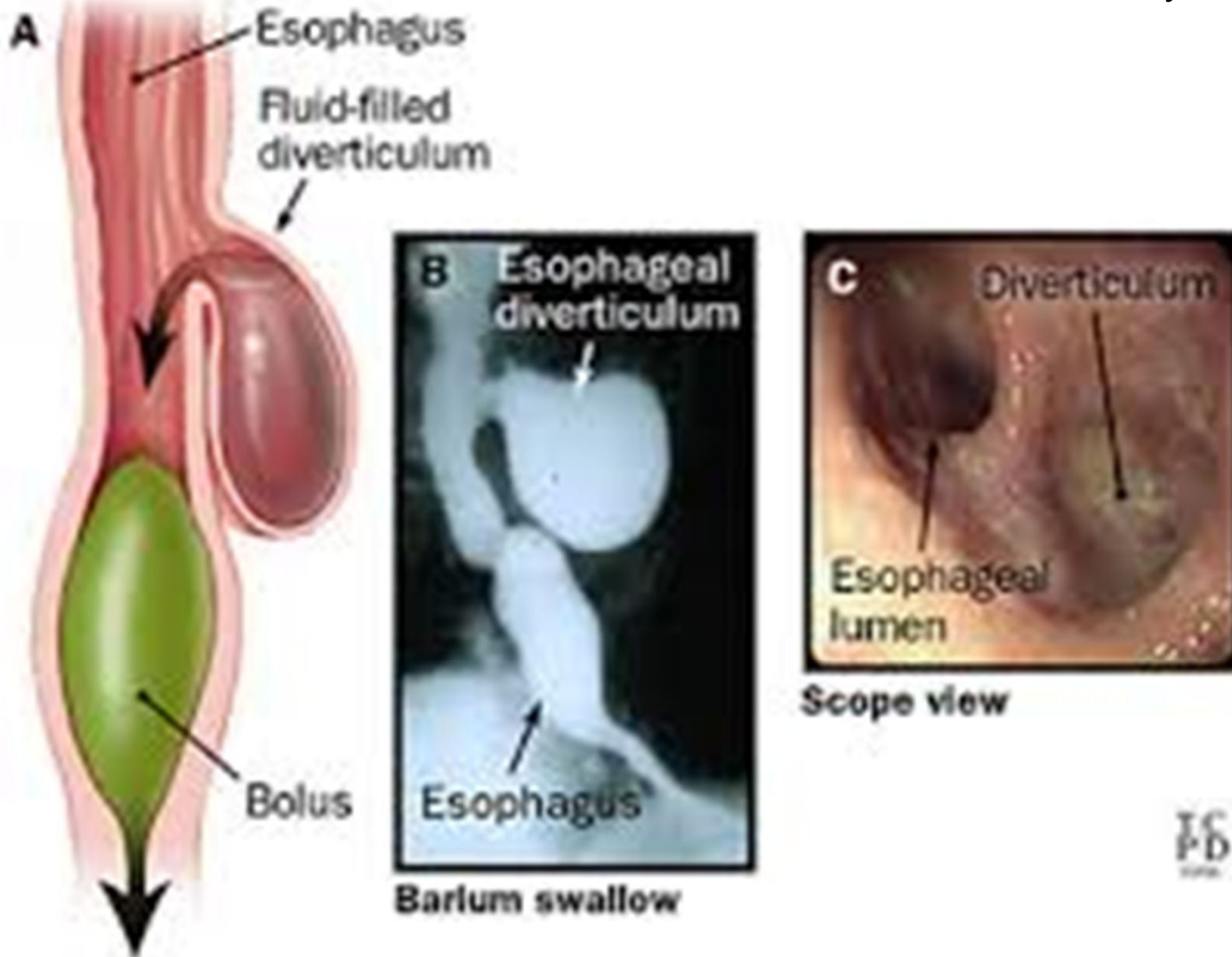
- Zenker diverticulum is an acquired “out-pouching” of mucosa above the cricopharyngeal muscle at a point of relative weakness in the posterior muscle wall of the hypopharynx. it is more common in **men** and probably associated with GI reflux disease.
- Small diverticulae of this type tend to cause dysphagia, whereas larger diverticulae cause **regurgitation of food even from previous days**, occasionally complicated by aspiration.
- **Gurgling** in the throat on swallowing and **halitosis** may be present.



diverticulum may retain food and secretions and classically leads to halitosis, delayed regurgitation, recurrent aspiration, and pneumonia. Dysphagia is usually due to compression of a food-filled diverticulum of the esophagus. Treatment is diverticulectomy with cricopharyngeal myotomy.

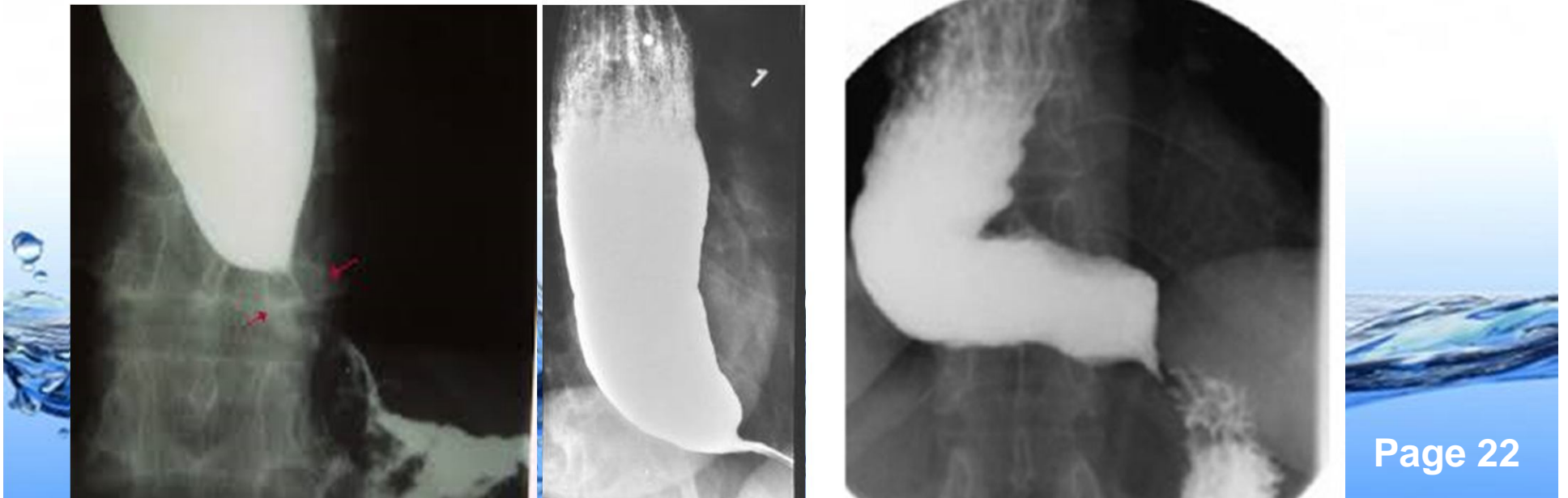
- It is important for a Zenker diverticulum to be diagnosed on barium swallow because of an increased risk of perforation at endoscopy.

Large Zenker diverticulum in the posterior pharyngeal wall in a 73-year-old man.



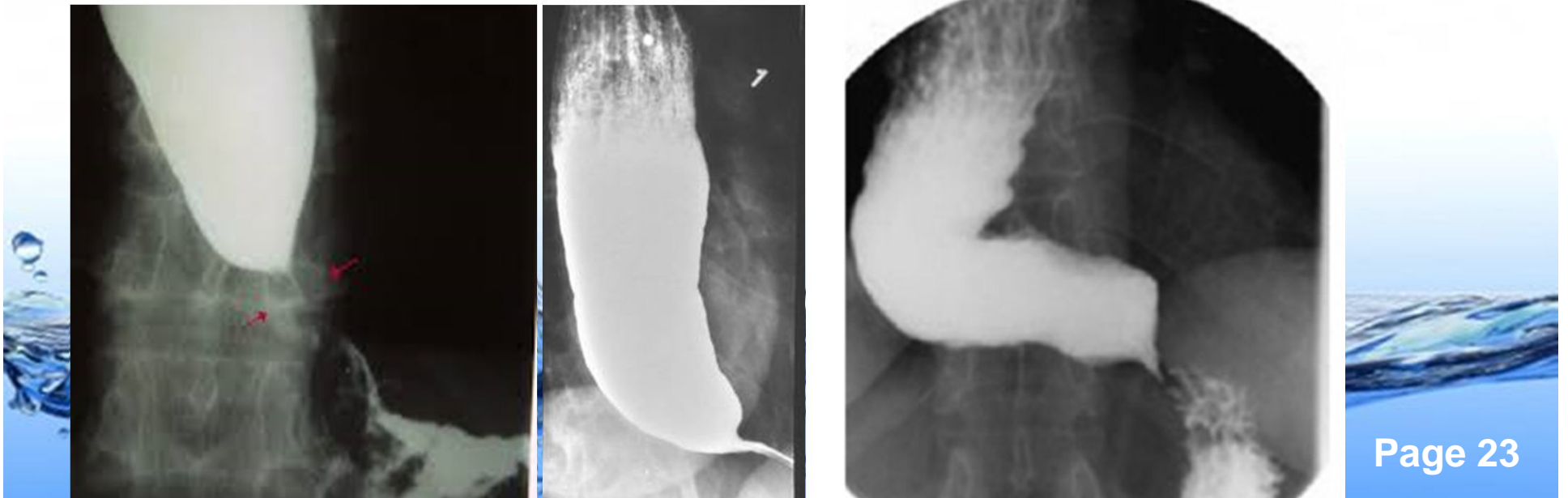
B. Esophageal Motility Disorders

- 1- Achalasia
- usually occurs in **the third to sixth decade**, affecting men and women equally.
- The dysphagia caused by achalasia is **due to failure of the lower esophageal sphincter to relax upon swallowing (i. e., functional obstruction)**. In general, this leads to **aperistalsis and dilation of the tubular esophagus (megaesophagus)**.



B. Esophageal Motility Disorders

- Pathophysiology of Achalasia
- The precise etiology is unknown.
- However, the primary lesion appears to be an inflammatory **degeneration of the inhibitory neurons** that mediate lower esophageal sphincter relaxation, leads to failure of lower esophageal sphincter relaxation and megaesophagus.



B. Esophageal Motility Disorders

- Clinical Features and Diagnosis
- Dysphagia for **solid food and liquids** is the main presenting symptom, together with regurgitation of undigested food and weight loss. **Retrosternal pain** is not unusual and may be described as “**heartburn**”. The diagnosis is suggested by the presenting symptoms, typical radiological findings, and endoscopy (to exclude structural lesions). **The diagnosis is established by manometry.** Classical findings include raised lower esophageal sphincter pressure, failure of lower esophageal sphincter relaxation on swallowing, and aperistalsis.



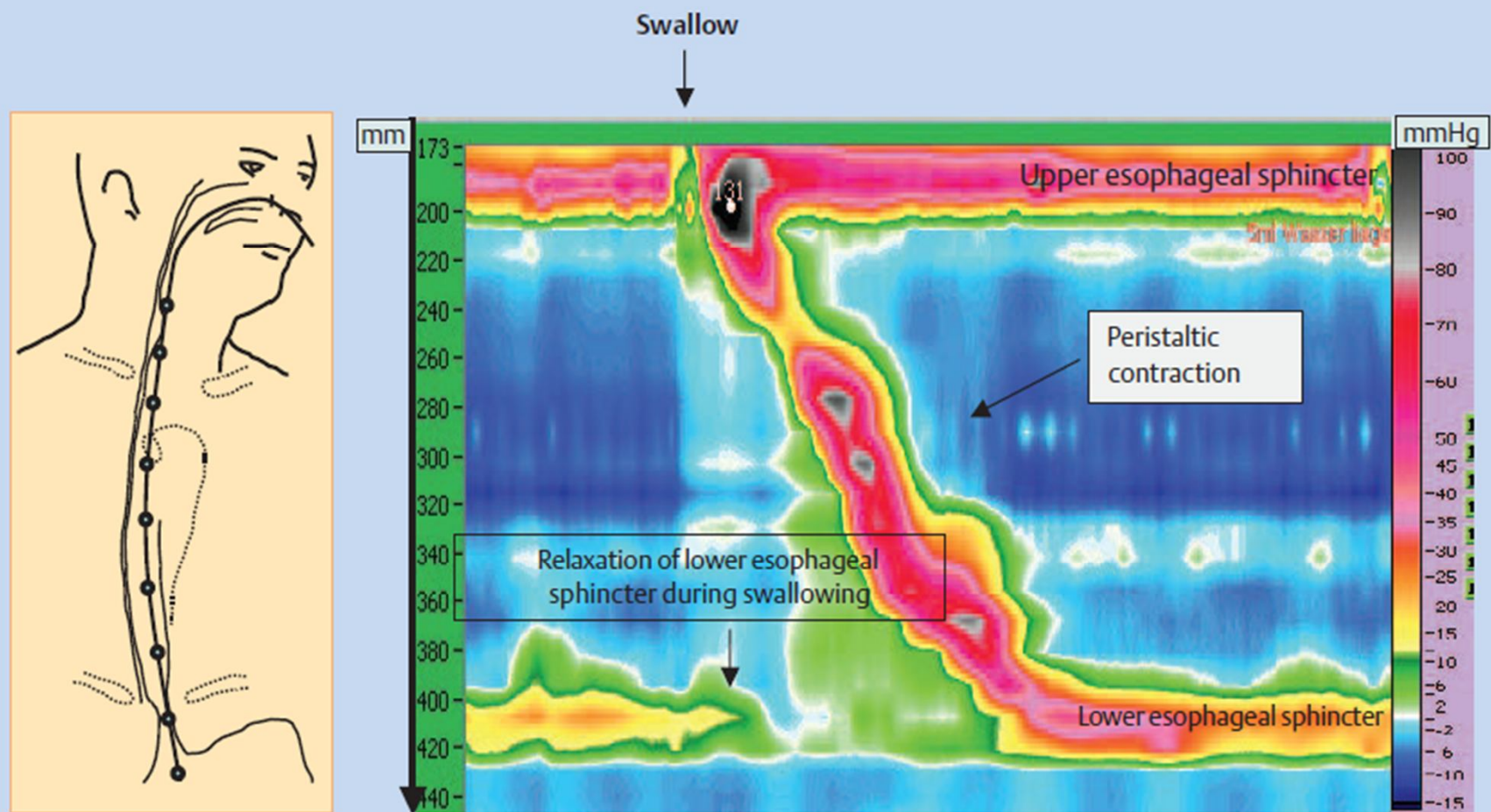
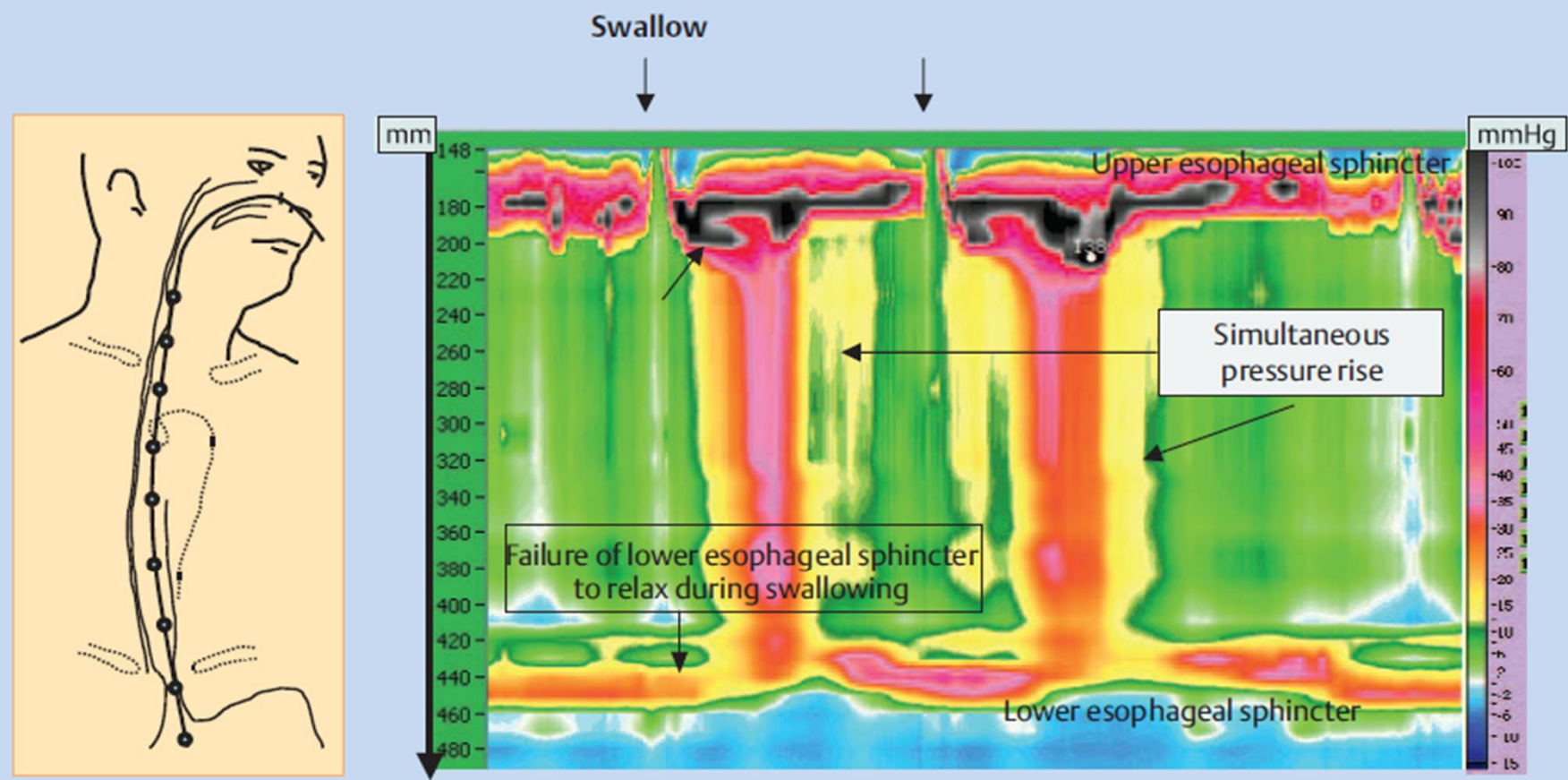


Fig. 26.5 High resolution (32-pressure sensor) manometry of a normal water swallow.

- a** The spatiotemporal plot displays time on the x axis and distance from the nares on the y axis. Pressure is indicated by color and shading (see color bar [right axis]; low-pressure light blue–green, high pressure dark red–black). The upper and lower esophageal sphincters open at the same time on swallowing, allowing the bolus to be transported through the tubular esophagus into the stomach by peristaltic contraction without resistance.





High resolution manometry of a water swallow (spatiotemporal plot) in a 35-year-old man with achalasia presenting with an 18-month history of dysphagia to solid food and liquids. The upper esophageal sphincter opens on swallowing, the lower esophageal sphincter fails to relax. The bolus remains in the mid-esophagus and simultaneous, low-amplitude pressure changes are observed in the tubular esophagus (this “common cavity effect” indicates esophageal dilation).

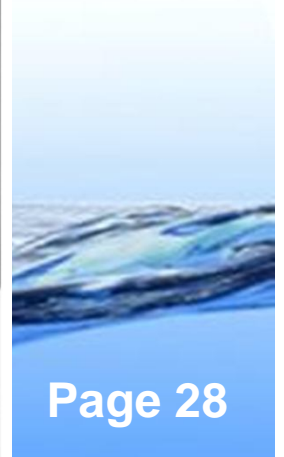
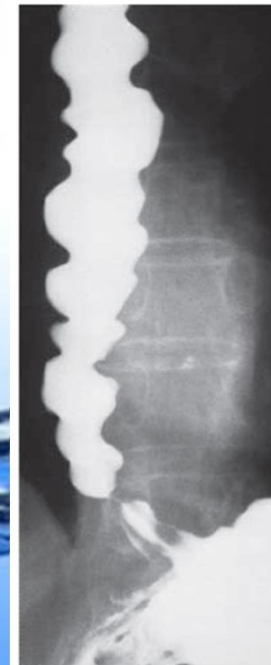
B. Esophageal Motility Disorders

- 2- Diffuse esophageal spasm” (DES):
- Dysphagia for **solid food and liquids** is the main presenting symptom, together with **atypical chest pain**. This “noncardiac chest pain” can be severe and occur between meals (also at night). **It is important to differentiate these symptoms from angina pectoris** (e. g., lack of association with exercise, normal electrocardiogram). Although, esophageal and coronary artery spasm can occur in the same patients. Esophageal spasm and pain can be **triggered by various stimuli** (acid reflux, hot or cold food, stress)..

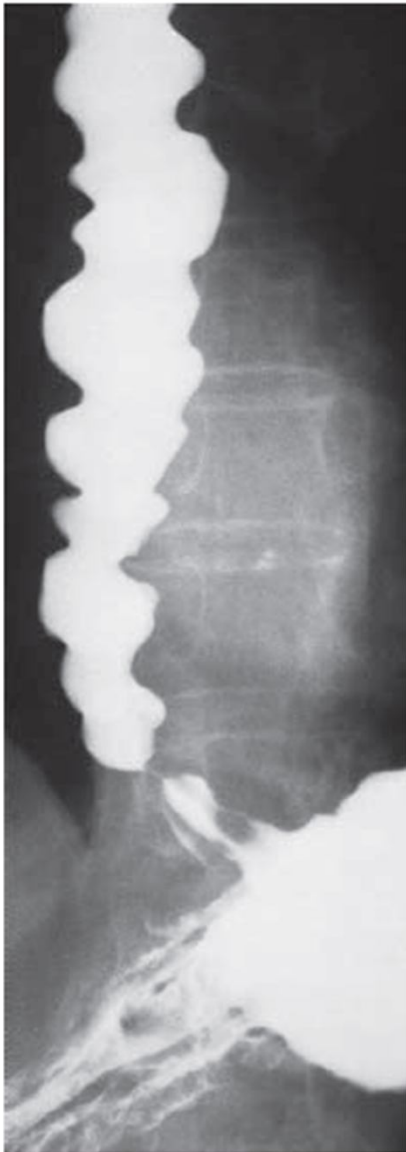


B. Esophageal Motility Disorders

- 2- Diffuse esophageal spasm” (DES):
- The diagnosis of esophageal dysmotility is established by **manometry**. In DES a simultaneous, segmental rise in distal esophageal pressure occurs on swallowing,
- Typical radiological findings of DES in barium swallow are multiple, nonprogressive, tertiary (“**corkscrew**”) contractions with “pseudodiverticulae” between the rings of contraction. However these appearances may be intermittent and of short duration and are not sensitive for diagnosis.



The diagnosis must be confirmed by manometry, because endoscopy may be normal with unimpeded passage into the stomach and radiology is frequently nonspecific.



Tertiary (nonperistaltic) esophageal contractions in a 73-year-old man with dysphagia and regurgitation.



Pseudodiverticulae are seen between the contractions ("corkscrew" esophagus).



C. Mucosal Disease (Odynophagia)

- Esophageal Ulceration

- The sudden onset of **odynophagia (painful swallowing)** is suggestive of esophageal ulceration caused by **caustic material or medication** (“drug-induced ulcer,” commonly tetracycline, NSAIDs, anticholinergics, iron and potassium preparations).
- The ingestion of tablets before bed or without adequate fluid can lead to prolonged contact of irritating medicinal compounds with the esophagus and local damage to the mucosa. The diagnosis is confirmed by **endoscopy**. Healing is facilitated by acid suppression and is usually successful within a week.



C. Mucosal Disease (Odynophagia)

- Esophageal Ulceration
- Esophageal Trauma. Odynophagia can be caused by mucosal damage following the ingestion of **foreign objects** (e. g., fish bones). Short-lasting odynophagia is common after endoscopic procedures, especially **sclerotherapy of varices**.



C. Mucosal Disease (Odynophagia)

- Esophagitis

Gastroesophageal reflux disease is by far the most common cause of esophagitis. However, odynophagia is uncommon, except in the **most severe cases**. Dysphagia is often reported by patients with GERD, either as a consequence of primary esophageal dysmotility or more commonly, secondary to the effects of acid exposure on the esophagus. Acid suppression often improves these symptoms.



C. Mucosal Disease (Odynophagia)

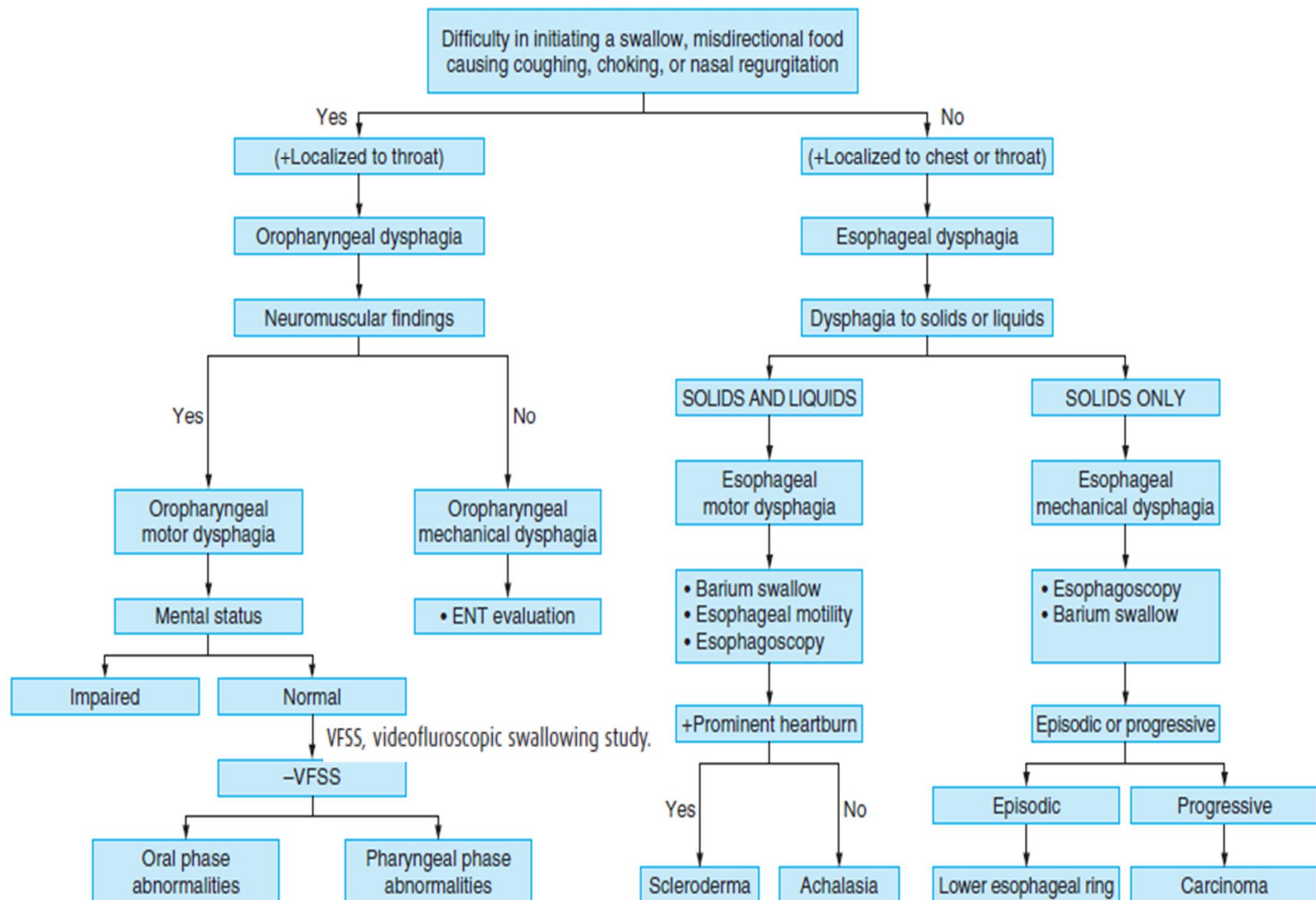
- Esophagitis

In contrast, infectious causes of esophageal ulceration often cause **odynophagia with or without dysphagia**. Common agents include **Candida, herpes viruses, and Cytomegalovirus** (most common in immunosuppressed patients, e. g., HIV infection). Esophagitis with or without “sore throat” (indicating pharyngeal involvement) can also be caused by radiotherapy and chemotherapy.



Algorithm outlining an approach to the patient with dysphagia.

DYSPHAGIA





GOOD LUCK